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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/043,710	01/09/2002	Joachim Hagenauer	2345/41A	7448

26646 7590 06/16/2003

KENYON & KENYON
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NEW YORK, NY 10004

EXAMINER

BURD, KEVIN MICHAEL

ART UNIT	PAPER NUMBER
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2631

DATE MAILED: 06/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
10/043,710

Applicant(s)
Hagenauer et al

Examiner
Kevin Burd

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on May 19, 2003
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

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DETAILED ACTION

1. This office action, In response to the amendment filed 5/19/2003, is a non-final office action.

Response to Arguments

2. The objections to the claims have been withdrawn.

3. The rejections of the claims under 35 U.S.C. 112, second paragraph, have been withdrawn.

4. The double patenting rejection has been overcome due to the filing of the terminal disclaimer received 5/19/2003.this rejection is withdrawn.

5. Additional information is provided in the rejections of claims 1-24 to clarify the combination of Hagenauer, "Forward Error Correcting for CDMA Systems", Proceedings of ISSSTA '95 International Symposium on Spread Spectrum Techniques and Applications, Mainz, Germany, Vol. 2, September 1996, pp 566-569 in view of the instant application's disclosed prior art, and further in view of Hagenauer et al, "Iterative Decoding of Binary Block and Convolutional Codes," IEEE Transactions of Information Theory, Vol 42, No. 2, March 1996, pp 429-445.

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Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hagenauer, "Forward Error Correcting for CDMA Systems", Proceedings of ISSSTA '95 International Symposium on Spread Spectrum Techniques and Applications, Mainz, Germany, Vol. 2, September 1996, pp 566-569 in view of the instant application's disclosed prior art, and further in view of Hagenauer et al, "Iterative Decoding of Binary Block and Convolutional Codes," IEEE Transactions of Information Theory, Vol 42, No. 2, March 1996, pp 429-445.

Regarding claims 1, 4-6, 17 and 20-22, Hagenauer (Sept 1996) discloses a method of decoding a received signal by providing a soft-in/soft-out decoder in a receiver where the soft-in/soft-out decoder comprises an inner and outer decoder (pp 566-567). Figure 3 on page 567 shows the inner decoder outputting a signal to the input of the outer decoder. This signal comprises L values as stated in the right hand column of page 567 and the L values are soft values. The soft values will be processed as reliability information, as L values at an output of the inner decoder and the input of the outer decoder.

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Hagenauer (Sept, 1996) does not explicitly disclose which types of codes are used to decode the received signal even though it is mentioned that Hadamard codes are used. However, on page 1 of the instant application, Applicants acknowledge "Transmission systems having an inner code, namely orthogonal modulation using Walsh functions or rows of Hadamard matrix as code words, and an outer code, for example a convolution code with interleavers interleave factors are known in decoding methods. It would have been obvious for one of ordinary skill in the art at the time of the invention to incorporate well known methods of encoding, which allow the transmission of signals to decoders, into decoder systems so decoding of well known systems can be conducted as well as newer encoding systems.

Additionally, Hagenauer (March, 1996), titled "Iterative Decoding of Binary Block and Convolution Codes" more clearly shows in figure 4 on page 433, the decoder system explained previously. This reference was cited in Hagenauer (Sept, 1996) and is a critical element in developing the information shown in the Hagenauer (Sept. 1996) reference. This citation appears on page 569.

Regarding claims 2, 3, 18 and 19, any type of modulation in the Hadamard matrix can be used. A 32-step or 64-step modulation is advantageous since more data is contained in these matrices than in a 16-step modulation.

Regarding claims 7-12, 14-16 and 23, Hagenauer (Sept. 1996) discloses the use of a priori or posteriori information can be used in the inner or outer decoder (pp 567)

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an the outer decoder feeds back L values to the inner decoder as shown on figure 3 and figure 4 of Hagenauer (March 1996).

Regarding claims 24, Hagenauer (Sept. 1996) discloses the use of a RAKE receiver in the soft-in/soft-out decoder (pp 567).

Contact Information

8. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 308-9051, (for formal communications intended for entry)

Or:

(703) 308-6743, (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Burd, whose telephone number is (703) 308-7034. The Examiner can normally be reached on Monday-Thursday from 8:00 AM - 4:30 PM. The examiner can also be reached on alternate Friday.

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Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4900.

A handwritten signature in black ink, appearing to read "Kevin M. Burd", is written over a horizontal line.

Kevin M. Burd
PATENT EXAMINER
June 14, 2003